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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/568,479

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Kai Eck

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EXAMINER

CHANG, JON CARLTON

ART UNIT

PAPER NUMBER

2624

MAIL DATE

DELIVERY MODE

11/03/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/568,479	Applicant(s) ECK ET AL.	
	Examiner JON CHANG	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,7-9,13,15 and 18-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,7-9,13,15 and 18-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 29, 2009 has been entered.

Response to Applicant's Amendment and Arguments

2. The amendment filed September 29, 2009 has been entered and made of record.

3. Applicant's arguments regarding the rejection under 35 U.S.C. § 112 first paragraph, have been fully considered but are not persuasive. Applicant states that "memory" is disclosed in Applicant's specification on page 4, lines 21 and 34. While the specification does disclose a memory at these locations, the memory is described as "for storing a number of map images." The claims, on the other hand, require the memory as "requiring instructions for performing a method..." This is not supported by the original disclosure.

4. Applicant's arguments regarding the rejection under 35 U.S.C. § 103 have been fully considered, but are deemed to be moot in view of the new grounds of rejection.

Specification

5. The disclosure is objected to because of the following informalities: In the specification, page 2, lines 4-6 refers to particular claims to describe invention. This is improper.

Appropriate correction is required

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 2, 3, 7, 8, 9, 15, 18, 13 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Claims 2, 3, 7, 8, 9, 15 and 18 recite, "the device." There is insufficient antecedent basis for this limitation in the claim.

9. Claims 13 and 20 recite, "a computer-readable memory comprising instructions." While it makes sense for instructions to be stored on a memory, it does not make sense for a memory to "comprise" instructions.

10. Claim 19 depends from claim 13 and is therefore indefinite by reason of its dependence.

11. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the

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art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

12. Claims 13, 19-21, 23-26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

13. Claims 13 and 20 recite, "a computer-readable memory comprising instructions for performing a method..." The original disclosure does not support this limitation. The specification only appears to support memory for storing map images (e.g., page 4, lines 21-22).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

16. Claims 1-3, 7-8, 13, 15, 18, 20-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,556,695 to Packer et al. (hereinafter referred to as "Packer"), in combination with U.S. Patent 7,280,710 to Castro-Pareja et al. (hereinafter referred to as "Castro-Pareja"), and in further combination with any one of the following two references: U.S. Patent 5,285,786 to Fujii (hereinafter referred to as "Fujii"), or U.S. Patent 6,859,548 to Yoshioka et al. (hereinafter referred to as "Yoshioka").

17. Regarding Claim 1, Packer discloses a device for combining a current image of an object (Col.8, Lines 47-50 and Col.9 21-24) and a map image of the dwell region of the object (Col.9, Lines 37-52), comprising a memory for storing a number of map images which are categorized according to a varying state of the dwell region of the object (column 9, lines 42-52), and a monitor for displaying the combination of the current image and the section of the map image (column 10, lines 31-36 and 48-53), wherein the data processing system is arranged

a) to estimate the position of the object in the current image in relation to the map image (Col.9, Lines 59-67 and Col.10, Lines 1-5), and

b) to combine the map image around the estimated position of the object with the current image, the estimated position of the object in the map image being brought into register with the actual position of the object in the current image (Col.10, Lines 31-36).

18. Packer does not disclose wherein the current image and the map image are from different imaging sources. However, this is well known in the art. For example, in an

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analogous environment (column 5, lines 53-63) Castro-Pareja discloses registering images of different modalities (column 5, lines 53-54; column 27, lines 15-21). Packer discloses that the system works with a variety of imaging sources (column 3, lines 59, 67). Further, Castro-Pareja's invention permits fast registration (column 1, lines 12-14) and the use of different sources allows accurate localization of structures. Therefore, it would have been obvious to one of ordinary skill in the art to modify Packer's system according to Castro-Pareja.

19. Packer does not disclose using only a section of the map image which just covers the region around the object. However, this is well known in the art.

20. For example, this limitation reads on at least two portions of Fujii. First, Fujii teaches combining images via subtraction, wherein mask image and contrast image data are subtracted (column 7, lines 38-44). As can be seen in Fig.4, if one considers the object to be the contents of image 110, and the map image to be image 100, then the section of the map image 100 just covers the region around the object. Second, Fujii also teaches (column 7, line 63 to column 8, line 15) superimposing two images by using a preset value of brightness where the x-ray image data from a first coexists with blood vessel image data from a second image, effectively using only that section of the map image (i.e., the blood vessel image data) which just covers the region around the object (i.e., from element 125 in Fig.4). Fujii states that its invention can provide a good grasp of the relative position of a catheter inserted into a blood vessel (column 2, lines 27-40). Therefore, it would have been obvious to one of ordinary skill in the art to modify Packer according to Fujii.

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21. As an alternative example, Yoshioka teaches superimposing the picture of a contour region over an original picture (column 18, lines 38-45). This is done by replacing only the pixel values in the portion of the original picture which correspond to the region within the contour region (column 17, lines 46-53). Therefore, only a section of the map image (e.g., original picture) which just covers the region around the object (e.g., the contour region) is used. Yoshioka's invention provides the advantage of lessening the burden to the inspector and obtaining objective, accurate inspection result, and can allow local movement states of the cardiac wall to be easily evaluated (column 2, lines 53-63). Therefore it would have been obvious to one of ordinary skill in the art to modify Packer according to Yoshioka.

22. Regarding Claim 2, Packer discloses the device of claim 1, wherein the object is located in a path network and the map image at least partially reproduces the path network (Col.8, Lines 47-50 and Col.9, Lines 42-44; in Packer, the "path network" is a vascular system, the reference disclosing the use of a flexible catheter in a vascular system and corresponding stored images of the vascular system).

23. Regarding Claim 3, Castro-Pareja teaches wherein the different imaging sources are a CT picture and a magnetic resonance picture (column 1, lines 21-27; column 27, lines 15-21).

24. Regarding Claim 7, Packer discloses the device of claim 1, wherein the data-processing system is arranged to select from the memory a map image whose associated state of the dwell region of the object is a best possible match for the state of the dwell region during the current image (Col.9, Lines 59-67 and Col.10, Lines 1-5).

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25. Regarding Claim 8, Packer discloses the device of claim 1, wherein the data-processing system is arranged to assign in the map image to each pixel a probability that it belongs to a spatially-defined structure (Col.9, Lines 59-67 and Col.10, Lines 1-5).

26. Claim 13 is drawn to a computer-readable memory, and recites a method which generally corresponds to apparatus claim 1, albeit with less detail. Therefore claim 13 is rejected for reasons discussed above with regard to claim 1, for their common elements. Packer discloses a computer-readable medium at column 4, line 12.

27. Regarding Claim 15, Packer discloses the device of claim 8, wherein the spatially-defined structure is a path network (Col.9, Lines 59-67 and Col.10, Lines 1-5).

28. Regarding Claim 18, Packer discloses the device of claim 1, wherein only a section of the current image is used (Col.10, Lines 31-36).

29. Claim 19 corresponds to apparatus Claim 18, therefore the discussion above for Claim 18 is applicable to claim 19.

30. Regarding claim 20, see the discussion above for claims 1 and 13.

31. Regarding claim 21, see the discussion above for claim 2.

32. Regarding claim 22, Packer discloses the system of claim 1, wherein an imaging source provides an image showing the position of an organ, an image showing the formation of blood vessel, or an image showing metabolic activity (column 2, lines 23-26; column 3, lines 55-57). In the combination, one of the different imaging sources would provide the image.

33. Regarding claim 23, see the discussion above for claim 3.

34. Regarding claim 24, see the discussion above for claim 7.

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35. Regarding claim 25, see the discussion above for claim 8.

36. Claims 9 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Packer in combination with Castro-Pareja, in further combination with either Fujii or Yoshioka, in view of U.S. Patent 5,568,384 to Robb et al. (hereinafter referred to as "Robb").

37. Regarding Claim 9, Packer discloses the device of claim 1, wherein the data-processing system is arranged to produce a distance image from the map image by a distance transformation (Col.9, Lines 53-67 and Col.10, Lines 1-8 teach the process for registering, and at column 9, lines 56-58, incorporates by reference U.S. Patent 5,568,384 to Robb, which provides details regarding a distance image by distance transformation. Robb discloses this at column 2, lines 40-62, for example.). Since Packer incorporates Robb by reference, the disclosure of Robb is considered to be included in Packer, and therefore Packer discloses the limitation.

38. Regarding claim 26, see the discussion above for claim 9.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JON CHANG whose telephone number is (571)272-7417. The examiner can normally be reached on M-F 8:00 a.m.-6:00 p.m..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571)272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Primary Examiner
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